WHAT IS CLAIMED IS:

1. An Hadamard transformation method comprising:

a first transformation step of transforming input signals using a four-point Hadamard transformation matrix in each of four four-point Hadamard transformation units;

a first rounding step of rounding up the least significant bit of each of the odd number of four coefficients transformed by each of said four four-point Hadamard transformation units and discarding the least significant bit of each of the remaining odd number of the four coefficients, so as to produce the integer type of four sets of coefficients, each set including four coefficients;

a second transformation step of selecting one coefficient from each one set of the four sets such that odd numbers of coefficients among the four selected coefficients for one set were rounded up in said first rounding step, and supplying the four selected coefficients to a four-point Hadamard transformation unit and transforming the four selected coefficients using a four-point Hadamard transformation matrix; and

a second rounding step of rounding up the coefficients transformed in said second transformation step so as to cancel propagation errors to be superposed over the transformed coefficients.

2. An method according to claim 1, wherein the coefficient is decreased by the discarding and the coefficient is increased by the rounding up.

3. An Hadamard transformation device comprising:

first transformation means, having four four-point Hadamard transformation units, for transforming input signals with a four-point Hadamard transformation matrix in each of the four four-point Hadamard transformation units;

first rounding means for rounding up the least significant bit of each of the odd number of four coefficients transformed by each of the four four-point Hadamard transformation units and discarding the least significant bit of each of the remaining odd number of the four coefficients so as to produce the integer type of four sets of coefficients, each set including four coefficients;

second transformation means for selecting one coefficient from each one set of the four sets such that odd numbers of coefficients among the four selected coefficients for one set were rounded up by said first rounding means, and supplying the four selected coefficients to the four-point Hadamard transformation unit and transforming the four selected

coefficients using the four-point Hadamard transformation matrix; and

second rounding means for rounding up the coefficients transformed by said second transformation means so as to cancel propagation errors to be superposed over the transformed coefficients.

4. An Hadamard transformation device for transforming 4×4 block data in two dimension including horizontal and vertical directions, comprising:

a first transform unit adapted to perform an Hadamard transformation on input data in unit of four items of the input data, and output first transformed coefficients;

a first decoder adapted to generate first data to be added for rounding process based on a row number or a column number of the 4×4 block data;

a first adder adapted to add the first transformed coefficients to the first added data from said first decoder;

a first discarding unit adapted to discard the lease significant bit of an output of said first adder;

a buffer adapted to store data processed in said first transform unit, said first decoder, said first adder and said first discarding unit, and be used for transporting the data;

a second transform unit adapted to input outputs of said buffer and perform an Hadamard transformation on the outputs in unit of four items of the outputs, and output second transformed coefficients;

a second decoder adapted to generate second data to be added for rounding process based on a row number or a column number of the 4×4 block data;

a second adder adapted to add the second transformed coefficients to the second added data from said second decoder; and

a second discarding unit adapted to discard the lease significant bit of an output of said second adder,

wherein the first data from first decoder has odd number of "1"s and the remaining of the first added data includes "0"s, and the second data from second decoder is used to cancel propagation errors superposed over the second transformed coefficients.

5. An Hadamard transformation device according to claim 4, wherein said first and second adders outputs four items of data including "0" or "0.5".

6. An Hadamard transformation device according to claim 4, wherein said first and second adders inputs the least significant bit of the first or second transformed coefficients, respectively, and outputs four items of data including "0.5" or "-0.5" in a case

where the least significant bit is "1", and outputs four "0"s in a case where the least significant bit is "0".

7. A two-dimensional Discrete Cosine Transformation device for two-dimensional discrete cosine transforming 8×8 block data, comprising:

segmenting the 8×8 block data into four 4×4 blocks; and

performing an Hadamard transformation on each of the four 4×4 blocks using the Hadamard transformation device recited in claim 4.

8. An Hadamard transformation method of transforming 4×4 block data in two dimension including horizontal and vertical directions, comprising:

a first transform step of performing an Hadamard transformation on input data in unit of four items of the input data, and outputting first transformed coefficients;

a first generation step of generating first data to be added for rounding process based on a row number or a column number of the 4×4 block data;

a first adding step of adding the first transformed coefficients to the first generated data;

a first discarding step of discarding the lease significant bit of an added result in said first adding step;

a transporting step of transporting data whose the lease significant bit is discarded in said first discarding step;

a second transform step of inputting the data transported in said transporting step and performing an Hadamard transformation on the data in unit of four items of the data and outputting second transformed coefficients;

a second generation step of generating second data to be added for rounding process based on a row number or a column number of the 4×4 block data;

a second adding step of adding the second transformed coefficients to the second generated data; and

a second discarding step of discarding the lease significant bit of a result added in said second adding step,

wherein the first generated data has odd number of "1"s and the remaining of the first added data includes "0"s, and the second generated data is used to cancel propagation errors superposed over the second transformed coefficients.

9. A two-dimensional Discrete Cosine Transformation method of two-dimensional discrete cosine transforming 8×8 block data, comprising the steps of:

segmenting the 8×8 block data into four 4×4 blocks; and

performing an Hadamard transformation on each of the four 4×4 blocks using the Hadamard transformation method recited in claim 8.

10. A program for executing the Hadamard transformation method according to claim 1.

11. A computer readable storage medium having stored thereon the program that executes the Hadamard transformation method according to claim 10.

12. A program for executing the Hadamard transformation method according to claim 8.

13. A computer readable storage medium having stored thereon the program that executes the Hadamard transformation method according to claim 12.